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10/585,617	07/11/2006	Katsunori Mineno	2006_1046A	7764

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EXAMINER

LIU, HENRY Y

ART UNIT	PAPER NUMBER
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3654

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/585,617	Applicant(s) MINENO ET AL.	
	Examiner HENRY LIU	Art Unit 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 4-18 are pending. The rejection to the amended Claims is set forth below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, 6, 7, 8, 9, 10, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being anticipated by TANAKA2 (JP 2000-266144) in view of SIRVEN (4,749,068), HOMME (5,178,239), and MIZUMUKAI (4,561,524).

Regarding Claim 4, TANAKA2 teaches "an auto-tensioner (1) for engine accessories, comprising: a cylinder (12) having an open top end and a closed bottom end (Fig. 1 and 2); a sleeve (7) having a bottom and inserted in said cylinder (12) such that a radially outer surface of said sleeve (9) is in contact with a radially inner surface of said cylinder (12); a seal member (16) mounted to said cylinder at said open top end thereof to prevent leakage of hydraulic oil in said cylinder (12); a rod (31) slidably

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extending through said seal member (16); a plunger (31 lower portion) connected to a bottom end of said rod (31) so as to be slidable in said sleeve along an axial direction, said plunger (31) defining a pressure chamber (18) below said plunger in said sleeve, and said plunger defining a reservoir chamber (17) (11) above said plunger in said cylinder such that, with hydraulic oil present in said reservoir chamber (17) (11), an air gap is present in said reservoir chamber between the hydraulic oil and said seal member (16) (Fig. 1, 2).” When the oil in chamber (17) (11) flows out through passage (11), there is an air gap between the sealing member (16) and the hydraulic oil.

TANAKA2 teaches “a plunger having a passage (33) through which said pressure chamber communicates with said reservoir chamber (17) (11) (Fig. 3, Fig. 4); a check valve (35) provided at said passage to close said passage when a pressure in said pressure chamber (18) exceeds a pressure in said reservoir chamber (17) (11) (Fig. 3); and a return spring (22) mounted around said cylinder (12) to bias said rod (31) outwardly of said cylinder (12); wherein a minute oil leak gap (14) is formed between sliding surfaces of said sleeve (7) and said plunger (31) such that hydraulic oil can flow from said pressure chamber into said reservoir chamber via said minute oil leak gap (14).”

TANAKA2 teaches “said minute oil leak gap (14) having a cross-sectional area, in a cross section perpendicular to the axial direction, substantially smaller than a cross-sectional area, in a cross section perpendicular to the axial direction, of said passage (33) (Fig. 3, Fig. 4).”

TANAKA2 does not teach “wherein a return chamber is under said sleeve so as to communicate with said reservoir chamber, said bottom of said sleeve being formed with a valve hole through which said return chamber communicates with said pressure chamber; and wherein a relief valve is provided at said valve hole to open said valve hole if the pressure in said pressure chamber exceeds a set pressure.”

SIRVEN teaches a return chamber (49) (48) defined under said sleeve so as to communicate with said reservoir chamber (2b), said bottom of said sleeve being formed with a valve hole (51) though which said return chamber (49) communicates with said pressure chamber (2a); and wherein a relief valve (41) is provided at said valve hole (49) to open said valve hole (51) if the pressure in said pressure chamber (2a) exceeds a set pressure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the return chamber and relief valve in SIRVEN to allow the auto-tensioner to be compressed quickly under a large force to prevent damage to itself or to the belt drive system in the case of a belt drive malfunction.

TANAKA2 does not teach a sleeve in contact over the entire axial length of the sleeve with a radially inner surface of said cylinder.

HOMME teaches a sleeve in contact over the entire axial length of the sleeve with a radially inner surface of said cylinder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the sleeve in contact

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with the cylinder as in HOMME to prevent the sleeve from deforming during the normal operation of the auto-tensioner.

TANAKA2 does not teach a seal member having a rod inserting hole therethrough so as to define an inner periphery of said seal member. The rod slidably extending through said rod inserting hold of said seal member such that said rod is always kept in contact with said inner periphery of said seal member regardless of an axial sliding position of said rod within said rod-inserting hole of said seal member.

SIRVEN teaches a seal member (5a) having a rod inserting hole therethrough so as to define an inner periphery of said seal member (Fig. 1). The rod (3) slidably extending through said rod inserting hold of said seal member such that said rod is always kept in contact with said inner periphery of said seal member regardless of an axial sliding position of said rod within said rod-inserting hole of said seal member (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the sleeve in contact with the cylinder as in SIRVEN to prevent fluid from leaking from the auto-tensioner.

TANAKA2 does not teach said return chamber is defined by said closed bottom of said cylinder.

MIZUMUKAI teaches a return chamber (58) (F) defined by the closed bottom of said cylinder (Fig. 1).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the return chamber location in MIZUMUKAI to create an auto-tensioner of a desired shape and size.

Regarding Claim 5, TANAKA2 as modified teaches “wherein said return chamber (SIRVEN (49) (48)) communicates with said reservoir chamber (SIRVEN (2b)) through at least one axial groove (SIRVEN (33)) formed in a surface between said sleeve (SIRVEN (2) (7)) and said cylinder (SIRVEN (8)).”

Regarding Claim 6, TANAKA2 as modified teaches “wherein the surface in which said at least one axial groove (SIRVEN (33)) is formed is an outer peripheral surface of said sleeve (SIRVEN (2) (7) (Fig. 1-3)).”

Regarding Claim 7, TANAKA2 as modified teaches “wherein said seal member (TANAKA2 (16)) is interposed radially between said rod (TANAKA (31)) and said cylinder (TANAKA2 (12)) so as to seal a radial gap between said rod and said cylinder (TANAKA2 (12) (Fig. 1)).”

Regarding Claim 8, TANAKA2 as modified teaches “wherein said seal member (16) and said sleeve (9) are separate and distinct members.”

Regarding Claim 9, TANAKA2 as modified teaches “wherein said seal member (16) is interposed radially between said rod (31) and said cylinder (12) so as to seal a radial gap between said rod (31) and said cylinder (12).”

Regarding claim 10, TANAKA2 as modified teaches all the elements of Claim 10 except “wherein said seal member is spaced apart from said sleeve and is disposed above a top end of said sleeve.”

SIRVEN teaches a seal member (5a) spaced apart from a sleeve (2) and is disposed above a top end of said sleeve (Fig. 1). The seal would be disposed above the sleeve when the drawing is turned upside down.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the seal in SIRVEN as a matter of design choice to seal the cylinder at a location where the seal can be more easily replaced.

Regarding Claim 15, TANAKA2 as modified teaches wherein said pressure chamber (18) is formed by said sleeve (7) and said plunger (lower portion of 31), and said return chamber (SIRVEN 49 48) is formed by said closed bottom end of said cylinder (SIRVEN 7) and said sleeve (SIRVEN 2).

Regarding Claim 17, TANAKA2 as modified teaches wherein the return chamber is in fluid communication with the reservoir chamber (17) (11) through a groove (11) formed between the sleeve (7) and the cylinder (12) in a surface of the sleeve (7).

Regarding Claim 18, TANAKA2 as modified teaches wherein the return chamber (SIRVEN 49 48) is in fluid communication with the pressure chamber (SIRVEN 2a), and receives hydraulic oil from the pressure chamber (SIRVEN 2a) when movement of the plunger (SIRVEN 1) compresses the pressure chamber (SIRVEN 2a) to a pressure exceeding the set pressure.

Claim 16 is rejected under 35 U.S.C. 103(a) as being anticipated by TANAKA2 (JP 2000-266144) in view of SIRVEN (4,749,068), HOMME (5,178,239), and MIZUMUKAI (4,561,524) and further in view of ROSSMAN (2,087,451).

Regarding Claim 16, TANAKA2 as modified teaches a spring (45) to close said relief valve when pressure in said pressure chamber does not exceed said set pressure.

ROSSMAN teaches a relief valve (65) disposed in said return chamber (56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the relief valve location in ROSSMAN to create a more simple and compact shock absorber.

Claims 11, 12, 13, and 14 are rejected under 35 U.S.C. 103(a) as being anticipated by TANAKA2 (JP 2000-266144) in view of SIRVEN (4,749,068), HOMME (5,178,239), and MIZUMUKAI (4,561,524).and further in view of ORLOFF (2,564,790).

Regarding Claims 11 and 13, TANAKA2 as modified teaches all the elements of Claim 11 except “a wear ring mounted to said rod and disposed inside said cylinder, said wear ring being in sliding contact with an inner peripheral surface of said cylinder to support an intermediate portion of said rod.”

ORLOFF teaches a wear ring (18) mounted to a rod (14) and disposed inside said cylinder (2), said wear ring being in sliding contact with an inner peripheral surface of said cylinder to support an intermediate portion of said rod (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the wear ring in ORLOFF as a matter of design choice to support and guide the piston to move down the center of the cylinder bore when compressed.

Regarding Claims 12 and 14, TANAKA2 as modified teaches a wear ring (ORLOFF 18) disposed axially between said seal member (ORLOFF 25) and the lower part of the cylinder.

TANAKA2 as modified does not teach a wear ring disposed above the sleeve.

TANAKA2 teaches a slide ring (20) disposed above the sleeve (7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 as modified with the placement above the sleeve in TANAKA2 as a matter of design choice to support and guide the piston to move down the center of the cylinder bore at a more rigid portion of the assembly.

Response to Arguments

Applicant's arguments filed 2/28/2011 have been fully considered but they are not persuasive.

In response to applicant's argument that SIRVEN does not specifically disclose the benefit of allowing *the auto-tensioner to be compressed quickly under a large force to prevent damage to itself or to the belt drive system* (Remarks pg. 7 para. 2), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Also, the shock absorber would still be movable even if the relief valve requires a large force to open. Fluid would pass through passage 28 to allow tensioner movement.

Applicant's arguments that the valve, passages third chamber in SIRVEN do not make sense when combined with various features in TANAKA2 (Remarks pg. 8 para 1)), is not persuasive. The test for obviousness is not whether the features of a

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secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Here, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the auto-tensioner in TANAKA2 with the return chamber and relief valve in SIRVEN to allow the auto-tensioner to be compressed quickly under a large force to prevent damage to itself or to the belt drive system in the case of a belt drive malfunction.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY LIU whose telephone number is (571) 270-7018. The examiner can normally be reached on Mon-Thurs 7:30am - 5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL MANSEN can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Mansen/
Supervisory Patent Examiner, Art Unit 3654

/H. L./
Examiner, Art Unit 3654